Subject: Mission Services Customer Forum #7 Summary

Date: November 20, 2003

Location: Building 3 Goett Auditorium, Goddard Space Flight Center (GSFC)

Convened: 1:00pm **Adjourned**: 3:30pm

Attendance

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I. Welcome and Introductory Comments

Mr. Al Levine/Code 451, Customer Commitment Office Service Planning Manager, convened the forum by welcoming everyone to the 7th Mission Services Customer Forum. Mr. Jon Walker/Code 451, Customer Commitment Office Deputy Program Manager provided introductory comments. Mr. Walker noted that the spirit of the Columbia Accident Investigation Board (CAIB) report and the One NASA Workshop entails the exchange and collaboration of information, which is analogous to the intent of the Customer Forum.

II. Open Floor (Customer Concerns)

Mr. Levine opened the floor to the audience for comments, questions, and/or concerns. There were no responses.

Note

Presentations referenced in the following paragraphs are available online at URL http://msp.gsfc.nasa.gov/mscf/

III. CSOC Phase-out

Mr. Kevin McCarthy/Code 451, NENS COTR, presented a summary of CSOC transition activities that have been completed. Mr. McCarthy noted the closure of the Consolidated Logistics Facility as a significant milestone and praised the efforts of CSOC and Mr. John Jackson/Code 450, CSOC COTR, in completing the wall-to-wall property inventories.

IV. Near Earth Networks Services (NENS)

Mr. McCarthy presented an overview of the NENS contract. The NASA/GSFC goals for the NENS contract are:

- To enable mission success for every NENS customer.
- To provide NASA with services that are highly reliable, affordable, and contribute to the safe operation of the mission.
- To implement a safety, health, and mission assurance program that provides a safe and healthy work environment, minimizes the program risk, and maximizes NASA mission success.

NENS is a cost-plus award fee contract with a five-year performance period from October 9, 2003 through October 8, 2008. The two key components of the contract are (1); the core requirements, which consists of program and business office management as well as Space Network (SN) operations and (2); IDIQ tasks, which will cover Ground Network (GN) activities, development, and customer commitment support. Phase-in activities, including management meetings, review boards, and job fairs, began on October 9, 2003 when the contract was awarded to Honeywell, and will continue through December 31, 2003 with a Phase-in Operation Readiness Review (ORR) scheduled for December 17, 2003. The progress of the phase-in activities are expected to result in the downgrading of two outstanding risks that are being tracked.

Under NENS, NASA personnel will chair ORRs and higher standards will be imposed for SN proficiency requirements. A Performance Evaluation Board composed of participants from Codes 450, 420, 222, and 210 will evaluate contract performance for Program/Business Management, Technical/Schedule Performance, and Cost Performance. The government will identify areas of contractor performance that will receive special attention in the performance period. Three specific areas of emphasis that the government will focus on during the first evaluation period are:

- SN and GN critical support to Human Spaceflight missions, Special Projects and Missions, Expendable Launch Vehicle support, and spacecraft launch and early orbit operations that meet all missions' requirements with 100 percent service proficiency.
- Successful test and operations of new missions with the supporting networks and participation in internal and external reviews as required to demonstrate to GSFC a readiness to provide NENS support as specified in each customer's mission requirements documentation.
- Successful execution of the Phase-in Plan with a focus on the seamless assumption of full operations and technical responsibility from the predecessor contracts by January 1, 2004.

Mr. McCarthy was asked about information to access the mission set. Mr. Walker will provide mission set access information.

V. Mission Operations and Mission Services (MOMS)

Mr. Ron Mahmot/Code 444, MOMS COTR and Space Science Mission Operations Project Manager, presented the MOMS contract status. The MOMS contract was effective on November 1, 2003 with a phase-in period through December 31, 2003. The MOMS tasks represent work performed under the CSOC SSEO including flight operations, flight dynamics functions, sustaining engineering, mission development, and some Code 290 work. Two phase-in challenges have been identified. They are the retention of key incumbent personnel and the transfer of property. Both issues are being closely monitored. An ORR will be held in December 2003 to review the readiness of the MOMS elements. A separate ORR is planned to review the readiness of the flight dynamics functions due to the high risks associated with these activities.

Mr. Mahmot was asked about the retention of incumbent personnel in the FDF. Mr. Mahmot responded that of the 43 incumbent CSC employees over 30 have agreed to transition to MOMS.

Mr. Mahmot was asked about the TRMM Mission Operations Support under MOMS. Mr. Mahmot responded that the TRMM Mission Operations Support under MOMS does not include the TRMM flight operations function because it is part of the Space Operations Institute effort with Capitol College.

VI. IONet Security Overview

Mr. Bernie Tomardy/Code 297, GSFC Enterprise IT Security Branch Head and IONet Network Security Officer (NSO), presented an overview on IONet Security. The structure of the IONet is being changed from two segments (closed and open) to three segments (closed, open, and restricted) to accommodate missions that cannot use the closed IONet.

IONet users must adhere to regulations that are authorized by public law, NASA Headquarters Directives and NASA Policy Guidelines. IONet users also have to comply with the *Internet Protocol Operational Network Access Protection Policy and Requirements 290-004* document published by Code 290. The Closed IONet is further restricted by the NASA Resource Protection Program (NRP), which requires National Agency Checks for personnel with access to the Closed IONet. IONet security procedures apply to all IONet users including NASA centers/facilities, contractors, universities, commercial facilities/users, and international partners/users.

The *Internet Protocol Operational Network Access Protection Policy and Requirements 290-004* document as well as the Audit Checklist are available online at:

- http://code297.gsfc.nasa.gov

When completing the required security documentation including the Audit Checklist, IONet users, especially new projects, should coordinate with the NISN Services Manager or GSFC Project Communications Engineer if they require assistance or have any questions. Users are requested to submit their completed documentation via U.S. Mail or fax, and not use email unless they use NASA PKI Encryption.

Security Audits, which are required on an annual basis for all locations with connections to the IONet, will include compliance with Physical and IT Securities Policies. Any issues and questions resulting from an audit review will be discussed with project personnel. If required, the NSO team will make recommendations for remediation of outstanding issues.

NISN is responsible for security of the Network, but users are responsible for the confidentially of their data.

A recently issued OMB directive mandates performing security scans on 100 percent of Network IP Address spaces, including mission networks, on a quarterly basis. Currently, the NSO plans to perform the scans of the mission networks on an annual basis.

Contact information for the NSO is:

- Bernie Tomardy
  301 286 8089
  E-mail: Bernie.tormardy@nasa.gov

Mr. Tomardy was asked about a schedule for the restricted IONet. Mr. Tomardy responded that the restricted IONet is in place now. The Messenger project was the first to move onto it and other projects are in the process of being moved. A Readiness Review is planned for the end of December. Chris Spinolo/Code 291 is the point of contact for the restricted IONet.

Mr. Tomardy was asked if the closed IONet has ever been compromised with any viruses/worms. Mr. Tomardy responded that the closed IONet is the only NASA Network that has never been compromised.

VII. Flight Dynamics Facility SN BEAMS Display Capabilities

Mr. Shawn Lindsey/CSC/FDF presented an overview of the Space Network (SN) Beam Angle Measurement System (BEAMS). The objective of the system is to facilitate a better understanding of communication geometry in near real-time by displaying TDRS antenna beam angles and footprints as well as target spacecraft information. Currently, SN BEAMS is available in a 2-D or 3-D display and can support one user spacecraft and one TDRS contact at a time including TDRS handovers. Displays can be exported inside the closed IONet as well as over the open Internet. Displays can be viewed at:

- http://fdf.gsfc.nasa.gov
- http://fdf.home

A number of enhancements are planned for the system including supporting multiple TDRS contacts and exporting displays to closed IONet customers outside of the GSFC firewall.

A recent demonstration of the system was conducted for JSC personnel who expressed an interest in making the displays available in the MCC.

Mr. Lindsey was asked about the cost of the system and who the customers are. Mr. Lindsey suggested contacting Tim Thompson, FDF Manager, for cost information. Customers include the EMCC, WSC, and internal FDF.

Mr. Lindsey was asked if Atlas Centaur data is used to drive the displays. Mr. Lindsey responded that FDF generates the data to drive the displays.

VIII. Space Network Status

Mr. Tom Gitlin/Code 452, SN Project Deputy Project Manager presented a status on SN activities.

Mr. Gitlin discussed the status of the TDRS Constellation. TDRS 8, 9, and 10 were successfully launched. TDRS 9 and 10 will be transitioned into operations at the 171W longitude slot for a minimum of six months each. TDRS-9 relocation activities are expected to begin around December 8, 2003.

Mr. Gitlin discussed the SN Ka-Band initiative, which is intended to prevent future Ku-Band frequency interference issues and allow higher return data rates that take advantage of the Ka-Band capabilities of the new TDRS satellites. This initiative is separated into the Ka-Band Data Services (KaDS) project and the Ka-Band Flight System (KaFS) project. Objectives for the KaDS project include reducing costs to missions by providing multi-mission ground station receivers capable of data rates of at least 1.2 Gbps and enabling standard spacecraft communications by standardizing signal design. The KaFS project will provide missions with a reduced risk, lower cost method to obtain flight communications systems for ultra-high data rate services. Development of flight systems engineering models is anticipated by 2007. The SN project is looking for opportunities to partner with potential customers on the KaFS endeavor. The System Requirements Reviews (SRRs) for both projects have been completed and the System Design Reviews (SDRs) for both projects are scheduled for early next year.

Mr. Gitlin discussed the Second Guam Antenna System (SGAS) status. After Guam was hit with the Super Typhoon on December 8, 2003, a decision was made to install a back-up antenna system at the site. Efforts to define requirements for the antenna system have recently begun. Since the facility is on US Navy property, the Navy will perform facility modifications. The NENS contractor will procure, install, integrate, and test the system. The SRR is scheduled for January 2004 with the Operational Readiness Review (ORR) scheduled for June 2005.

Mr. Gitlin discussed the status of the Demand Access System (DAS). DAS expands TDRS Multiple Access (MA) return service capabilities by adding new receivers, TCP/IP telemetry distribution capabilities, and limited CCSDS data processing capabilities via the NISN IONet. The DAS is controlled and monitored by the SN Web Services Interface (SWSI). SWSI/DAS is undergoing testing with a planned operational date of February 2004. The DAS Full Operations Capability Review was held on October 7, 2003. Work continues on resolutions to liens assigned at the review and a problem that was discovered after the review. Transition of DAS to the O&M contractor is planned for December 2003.

Mr. Gitlin discussed the Bilateral Ranging Transponder System (BRTS) augmentation. The BRTS is critical in providing SN customers with extremely accurate tracking services. The system is over 20 years old and difficult to repair. The loss of BRTS would adversely impact the SN's ability to meet customers tracking requirements. As a result, plans are being developed to augment the existing system with new transponders. There is no intent to introduce new technologies or operations concepts. The SRR is scheduled for January 2004 and the ORR is scheduled for September 2005.

Mr. Gitlin was asked about the RFPs for the KaDS and KaFS projects. Mr. Gitlin responded that the RFPs for both projects should be issued in May 2005.

Ms. Donna Sadof/Code 452 FDF Manager discussed FDF highlights.

Due to potential conjunctions between TDRS-3 and Russia's Raduga spacecraft, FDF has begun routinely looking for conjunctions between the TDRSs and other geostationary spacecraft. The STK Collision Avoidance Tool will be used to automate this process.

The installation and testing of the FDF backup system in Building 13 was scheduled for completion by December 5, 2003. However, due to the failure of FDF's prime system in Building 28 during the weekend of November 13-14, 2003, the backup system in Building 13 was configured as the prime system. The system has performed without incident. An ORR is scheduled for mid-late December 2003.

Ms. Sadof was asked how long would it take to replace the prime system in Building 28. Ms. Sadof responded that the system would be replaced as soon as funding becomes available, hopefully by the end of the year.

Ms. Sadof was asked if the current prime system in Building 13 is redundant. Ms. Sadof responded that the file server is fully redundant, but there is no backup machine.

Mr. Joe Stevens/ Code 452/565 SNAS Product Manager discussed the Space Network Access System (SNAS). SNAS will consolidate the functions of the User Planning System (UPS) and the SWSI into a single system. Customers will be encouraged to migrate to the SNAS once it becomes operational. SNAS provides a networks-based customer interface for performing SN scheduling and real-time control and monitoring. It will be accessible via the open and closed IONet as well as the Internet. The SRR was completed in July 2003. Disposition of the Request for Actions (RFAs) is on-going. The projected ORR date is February 2006.

Mr. Stevens was asked if maintenance of the UPS would stop when SNAS becomes operational. Mr. Stevens responded that the SN project would no longer maintain the UPS when SNAS becomes operational.

IX. Ground Network Update

Mr. Steve Currier/Code 453 GN Project Deputy Project Manager presented an overview on Ground Network (GN) updates. The GN FY04 support capabilities are more certain now that the GN FY04 budget is deemed to be stable, with the exception of CSOC to NENS transitioning costs.

At the Alaska SAR Facility (ASF), FY04 services are planned to continue at current levels. Tracking services were transitioned into the existing GSFC DAAC contract in April 2003. The DAAC contract was renewed in November 2003 and now includes tracking and data acquisition as well as science data processing services. ADEOS-II has been declared lost by the Japanese Aerospace Exploration Agency. As a result, ASF is expected to be available for new tracking opportunities.

At McMurdo, FY04 services are planned to continue at current levels. Automation upgrades are proceeding. It is anticipated that X-band tracking with one operator will be possible by December 2003 and that 24 hours per day S-band tracking capability will be available in FY05.

At Santiago, services are planned to continue at current levels. Actual support will be determined when the CSOC to NENS transition costs become known.

Under expanded service initiatives, efforts continue to (1) enhance the 13-Meter antenna system (SG3) to provide a third antenna option at Svalbard, (2) enhance MILA for orbital support capabilities to maintain proficiency and increase flexibility, and (3) pursue contingency support services from NOAA CDA stations.

X. Earth Science Mission Operations (ESMO)

Mr. Ed Macie/Code 428 ESMO Operations Director presented a status on ESMO activities. Ongoing activities include preparing for the Aura launch and operations with a launch date of NET March 19, 2004; continuing CSOC to MOMS transition activities, including scoping out new tasks or areas not supported post CSOC; and continuing Space Operations Institute efforts through Capitol College.

Items to be worked include reviewing system architecture for obsolescence, cost efficiency, and risks; developing and maintaining a team of stake holders and service providers (Codes 290, 428, 444, 450, and 590) to provide oversight on the new contract; and developing an anomaly/incident reporting process.

Mr. Macie expressed concerns about the UPS going away, noting the dependency of EMSO projects that use the UPS without incident.

XI. Space Science Mission Operations (SSMO)

Mr. Ron Mahmot/Code 444, MOMS COTR and SSMO Project Manager presented an overview of the Codes 400 and 444 organizations and a status on SSMO activities.

The SNOE spacecraft is expected to re-enter around mid-December 2003. The SSMO project will request additional test time from the GN project during the re-entry period.

Under future missions and strategic planning, Memorandums of Agreements (MOAs) have been signed with Explorers, Solar Terrestrial Probes and Living With a Star Programs. Several other MOAs are pending completion. The project is also working with the GSFC Mission Services Evolution Center (GMSEC) to ensure that technology development and infusion efforts are integrated with mission needs. SMEX is actively working to implement GSMEC architecture.

Under Space Link Extension (SLE) activities, the project has agreed to eliminate the use of 4800-bit block communications with DSN. SOHO is pursuing a SLE demonstration with DSN in spring to early summer of 2004. WIRE was used as an on-orbit asset to evaluate the Avtec system at Wallops. Commanding from Houston was successful and follow-on activity is being defined.

Areas for more work include continuing to work CSOC to MOMS transition issues, coordinating the SNOE re-entry activities with supporting elements, and supporting an anomaly review audit of USN requested by GALEX. Code 450 has been requested to support this effort.

Mr. Mahmot was asked if information was available on the various missions he had discussed. Information can be obtained from the following websites:

- http://www.gsfc.nasa.gov/space.html
- http://www.gsfc.nasa.gov/mission.html

XII. Human Spaceflight

Mr. Bruce Schneck/HTSI CSR provided and overview on Human Spaceflight activities.

Mr. Schneck discussed the return to flight re-validation plans for the Integrated Network Elements. Following the STS-107 mishap, a team was assembled to re-validate the Integrated Networks. The team has developed a plan that encompasses verification and validation of new program requirements, significant network changes and anomalies, as well as any safety and security concerns. The plan was presented to and favorably received by key organizations at GSFC, JSC, and KSC. An Integrated Network ORR will be conducted approximately thirty days prior to launch, which is currently scheduled for September 2004. In addition, participation in the Mission Operations Directorate (MOD) and Level I/II Flight Readiness Reviews (FRR) will provide the Integrated Network readiness status to the Space Shuttle Program (SSP). A test plan has also been developed to provide directions for testing of the re-validation activities that include two new requirements. One of the new requirements is for External Tank Television and the other is for 6-Mbps downlink. Several return to flight activities have been completed. They include the Emergency Mission Control Center (EMCC) Full-up Simulation and FDF Proficiency Simulations. All tests were successfully conducted.

Mr. Schneck discussed the status of the International Space Station (ISS) 150-Mbps On-Orbit Testing. The ISS Ku-Band High Data Rate (HDR 50-75-150) was tested from 1995 to 1998. Until recently, only the 50-Mbps capability had been successfully tested and used on-orbit to transport

ISS science data. In August 2003, a successful test was conducted of the higher data rates on-orbit. It is anticipated that the 150-Mbps capability will be available by the time the ground system is completed in 2004.

Mr. Schneck discussed the ISS Downlink Enhancement Architecture (IDEA). IDEA is a ground systems infrastructure that will allow the ISS program the ability to enhance its science return from 50 Mbps to 150 Mbps over the Ku-band downlink, which will result in reduced costs. The system will be implemented in two phases. The completion date for Phase I activities is December 31, 2003. The completion date for Phase II activities is December 2004.

Mr. Schneck discussed the ESA Automated Transfer Vehicle (ATV) and NASDA H-II Transfer Vehicle (HTV) activities. The ATV and HTV are logistics modules that will be used to re-supply the ISS. The final series of compatibility testing for ATV is scheduled for April 2004 with a planned launch date of April 2005. Initial compatibility testing for HTV is planned for June 2004, follow-on is testing planned for September 2005, and launch is planned for December 2007.

Mr. Schneck was asked if JPL will be providing Shuttle support in the future. Mr. Schneck responded that the Air Force had supported the Shuttle program for many years, but a few years ago they asked for millions of dollars. Mr. Gary Morse/JSC DA7 added that a several years ago the Air Force requested $6,000,000 for their support, and NASA declined their request. Recently, the Air Force offered to support for $110,000 non-recurring and $40,000 per mission. NASA will accept this offer.

Mr. Schneck was asked about the possibility of going from a 1024 bit rate to a 2048 bit rate for forward link support. Mr. Schneck responded that both rates are possible but the constraint is the ground system inability to handle the 2048 bit rate.

Mr. Schneck was asked about a point of contact for the terrestrial link/150-Mbps effort. Mr. Morse recommended contacting Mr. Darrell Bailey/MSFC IDEA Project Manager for assistance.

A question was asked about the status of the effort to interface TDRS with the Transformation Communications Architecture (TCA). Mr. Walker responded that NASA continues to work with the TCA office and that NASA is still very much a part of the TCA endeavor.

XIII. Action Items

No formal action items were assigned at the meeting.

XIV. Closing

Mr. Levine closed the forum by thanking everyone for participating in the forum.

(Original Approved by:)
Al Levine
Code 451, Customer Commitment Office
Service Planning Manager